Problem 2.5:

For each of the indicated voltages, write it as the real part of a complex exponential (v (t)= Re (Ve^{st})). Explicitly indicate the value of the complex amplitude V and the complex frequency s. Represent each complex amplitude as a vector in the V-plane, and indicate the location of the frequencies in the complex s-plane.

1. $v(t) = cos(5t)$
2. $v(t) = sin(8t + \dfrac{\pi}{4})$
3. $v(t) = e^{-t}$
4. $v(t) = e^{-(3t)} sin(4t + \dfrac{3\pi}{4})$
5. $v(t) = 5e^{(2t)} sin(8t + 2\pi)$
6. $v(t) = -2$
7. $v(t) = 4sin(2t) + 3cos(2t)$
8. $v(t) = 2cos(100\pi t + \dfrac{\pi}{6}) - \sqrt{3}\ sin(100\pi t + \dfrac{\pi}{2})$